

not especially severe in character, as the following was the only storm log received.

**American S. S. *West Norranus*:**

Gale began on the 14th, wind WSW. Lowest barometer 29.80 inches at 4 p. m. on the 14th, wind NW., in latitude 27° 57' N., longitude 71° 35' W. End on the 14th, wind NW. Highest force of wind 7; shifts WSW-NW.

On the 17th and 18th there was another disturbance near the Bermudas, and vessels to the westward of these islands encountered northerly to northwesterly gales, as shown by following storm log:

**British S. S. *Matura*:**

Gale began on the 17th, wind SSW. Lowest barometer 29.66 inches at 3:10 p. m. on the 17th, wind SSW., 9, in latitude 32° 43' N., longitude 70° W. End on the 18th, wind NNW. Highest force of wind 9; shifts SW-W. At 3 p. m. on the 17th we experienced a terrific squall from the SSW. with thunder, lightning, rain and hail following a regular deluge of rain, lasting altogether about 7 minutes. The hail unusually large, each ball being about  $\frac{1}{4}$  inch in diameter. The wind backed from NW. to SSW. and every indication of bad weather. The first violent squall was followed by others of less force, with lulls between, and from 4:30 p. m. it set in to blow steadily, force 8, until about 2:30 a. m. on the 18th. The wind then shifted to WSW., the barometer rising gradually and the wind moderating.

On the 18th and 19th a deep depression surrounded Newfoundland, although no reports were received indicating unusually heavy winds.

On the 20th moderate northerly gales were reported off the coast of northern Europe, but no storm logs were received from vessels in that locality.

On the 21st and 22d there was a disturbance central near latitude 50° N., longitude 35° W., and on the latter date the storm area extended as far south as the 35th parallel. Storm logs:

**German S. S. *Bayern*:**

Gale began on the 21st, wind WNW., 7. Lowest barometer 29.62 inches at 3 p. m. on the 22d, wind NNW., 10, in latitude 46° 41' N., longitude 38° 36' W. End on the 22d, wind ENE. Highest force of wind 10, NNW.; shifts 4 points to east.

**British S. S. *Adra*:**

Gale began on the 22d, wind SSE. Lowest barometer 30.00 inches at 9:12 a. m. on the 23d, wind NNW., 9, in latitude 36° 09' N., longitude 41° 44' W. End on the 23d, wind NE. Highest force of wind 10, WNW.; shifts NNW-N.

Charts VIII to XI show the conditions from the 23d to 26th, inclusive, when unusual weather existed in the vicinity of the Azores, and heavy winds also prevailed over different sections of the ocean. Storm logs:

**French S. S. *Britannia*:**

Gale began on the 24th, wind NE. Lowest barometer 29.74 inches, wind NE. 7, at the Azores. End on the 26th, wind NNE. Highest force of wind 9; steady SE.

**Dutch S. S. *Prins der Nederlanden*:**

Gale began on the 24th, wind W. Lowest barometer 29.78 inches at 4 a. m. on the 25th, wind WSW., in latitude 32° 10' N., longitude 74° 15' W. End on the 25th, wind NW. Highest force of wind 8; shifts WSW-W-WNW-NW.

**American S. S. *Maiden Creek*:**

Gale began on the 24th, wind SE. Lowest barometer 29.93 inches on the 24th, wind SE., 8, in latitude 41° 45' N., longitude 56° 50' W. End on the 26th, wind SSE. Highest force of wind 9; steady SE.

On the 27th gales still prevailed over a limited area between the 40th and 50th parallels and the 20th and 35th meridians. Moderate weather was the rule over the remainder of the ocean, with the exception that one vessel near latitude 42° N., longitude 56° W., and another near latitude 34° N., longitude 50° W., reported southeasterly winds, force 8, although neither rendered

storm logs. By the 28th the storm area over the eastern section of the ocean had contracted materially, while heavy winds were encountered over a limited area in southern waters. Storm log:

**American S. S. *Gaffney*:**

Gale began on the 27th, wind SE. Lowest barometer 30.13, wind S., 7, in latitude 34° 10' N., longitude 50° 20' W. End on the 28th, wind S. Highest force of wind 8, SSE.; shifts 4 points.

The 29th and 30th were apparently the quietest days of the month, as practically all the reports received indicated moderate weather.

## CYCLONIC DISTURBANCES IN THE SOUTH ATLANTIC OCEAN.

By ALBERT J. McCURDY, Jr.

Gales of short duration and limited extent prevailed off the Brazilian coast in the first and middle decades of November, as indicated by weather reports received from vessels traversing the southern shipping routes in that month.

The Italian S. S. *Belvedere*, Capt. G. Gladulich, Buenos Aires, toward Trieste, reports a moderate gale experienced in latitude 32° 22' S., longitude 51° 20' W., on the 4th. Third Officer I. L. Uich states that the lowest barometric reading observed was 751.5 mm. (29.59 inches), at 8:50 a. m., wind ESE., force 7.

On the same date the American S. S. *Bird City*, Capt. H. Petersen, observer, Mr. Martin Marys, Philadelphia toward Buenos Aires, experienced a strong southerly gale with rough seas. The lowest pressure, 29.79 inches (corrected), was observed at 6:30 p. m., in latitude 31° 41' S., longitude 51° 09' W. Gale ended on the 4th, wind SSW. Highest force, 9; shifts SE. to SW.

Moderate to strong gales swept the southern coast of Brazil on the 5th, involving the Belgian S. S. *Londonier*, Capt. F. Paret, Antwerp, bound for Montevideo. Mr. W. R. A. Ezechials, observer, states that at 4 p. m., while in latitude 20° 03' S., longitude 38° 58' W., the pressure dropped from 29.66 inches to 29.56 inches (corrected), wind varying from NE., force 4, to NNW., force 5, weather clear and cloudy. At 6 p. m. the vessel was apparently close to the center of the disturbance in latitude 20° 01' S., longitude 39° 06' W. At this time the lowest observed pressure was 29.47 inches (corrected), wind shifting from NW. to SW., reaching its maximum velocity of force 9, variable. During a very fierce electrical thunderstorm, followed by heavy continuous rain, the wind diminished to force 4 with a rising barometer.

On the 19th of November the Danish M. S. *California*, Capt. P. G. C. Pedersen, proceeding from Hull, England, toward Buenos Aires, experienced winds of gale force off the southern coast of Uruguay. Mr. J. L. Oster, observer, reports heavy seas and overcast weather. The lowest pressure, 29.31 inches (corrected), was observed at 4 p. m., in latitude 32° 20' S., longitude 50° 30' W., wind from SE. Highest force of wind 8, from S.; shifts SW., S., SE.

The Dutch S. S. *Waalwijk*, encountered this gale on the 18th while proceeding from Rio Grande do Sul to Montevideo, reporting conditions similar to those experienced by the *California*.

Occasional thick fog was reported by vessels on the 8th, 9th, and 19th off the southern coast of Brazil.